

# **Internal and External Factors Influencing the Implementation and Diffusion of the Open Innovation Models:**

## **The Case of the Postal Sector**

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### **Abstract**

Much evidence identifies innovation as the main driver for companies to prosper, grow, and sustain a high profitability. New innovation models of so called ‘Open Innovation’ make companies rethink their innovation management, as it is assumed, that the implementation of such models result in better innovation performance. The relatively young field of research is expanding in many directions and the ongoing debates cover a multitude of areas connected through the overall aim of understanding how both high- and low-technology companies can become more innovative. Since the implementation of open innovation models depends among other factors on the industry sector, the model has to be adapted for each company. This paper reveals an overview on existing models on external as well as internal factors influencing companies’ innovation management and combines them to a new model on open innovation and its influencing factors. To point out the practical relevance of these influencing factors, we apply the open innovation model and its influencing factors on the case of the postal sector.

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## **1. Introduction**

Until recently, innovation management in most companies has mainly focused on internal innovation processes. But new models of so called ‘Open Innovation’ make companies rethink their innovation management: ideas are no longer exploited just from inside the company but also from outside of the firm’s boundaries, as it is assumed, that such purposive in- and outflows of knowledge and resources will result in better innovation performance (De Jong et al. 2006, p. 15-16). Many companies in different industries are currently transforming their innovation strategies from closed innovation management to open innovation models. Therefore, their innovation management changes from centralized R&D to open innovation models. This change is also noticeable in service industries, where intensified competition and increased technological dependency lead to the necessity for such companies to become and stay innovative. An example of a service industry undergoing enormous changes over the past decades is the postal sector, which has been going through a profound process of reform (liberalization). The major motivation for such liberalization was and still is the belief that competition stimulates, among others, process and product innovation, both of which are important vehicles for economic and productivity growth. The ability of any operator to create and sustain competitive advantages over the long term will depend largely on how well the operator deals with changes in its environment and manages to exhibit innovative behavior. In a changing environment, innovation is a key to adapting to change, overcoming organizational weaknesses, and adding value to the organization’s products and services (Sund 2008, p. 6).

In their overview of the existing literature on open innovation models, Fredberg, Elmquist and Ollila (2008) reveals open innovation as a very young field in which the most energy has been put into a fascination for the subject as such. Researchers have mainly explored open innovation models with a strictly firm-oriented perspective and referred to a very limited number of cases (such as IBM, P&G, Air Chemicals and Innocentive). But the research field is expanding in many directions and the ongoing debates cover a multitude of areas connected through the overall aim of understanding how both high- and low-technology companies can become more innovative. A recent study by Laursen and Salter (2006) indicates that the open innovation model should not lead to the interpretation that all companies act according to herd behavior and practice identical or very similar modes of governing innovation. Huge variations exist across as well as within industries and companies (Christensen 2006, p. 48). In this paper, we discuss open innovation models from both an industrial- and a firm-oriented

perspective and analyze external and internal factors that are influencing the implementation and diffusion of open innovation models.

## **2. Theoretical Foundations**

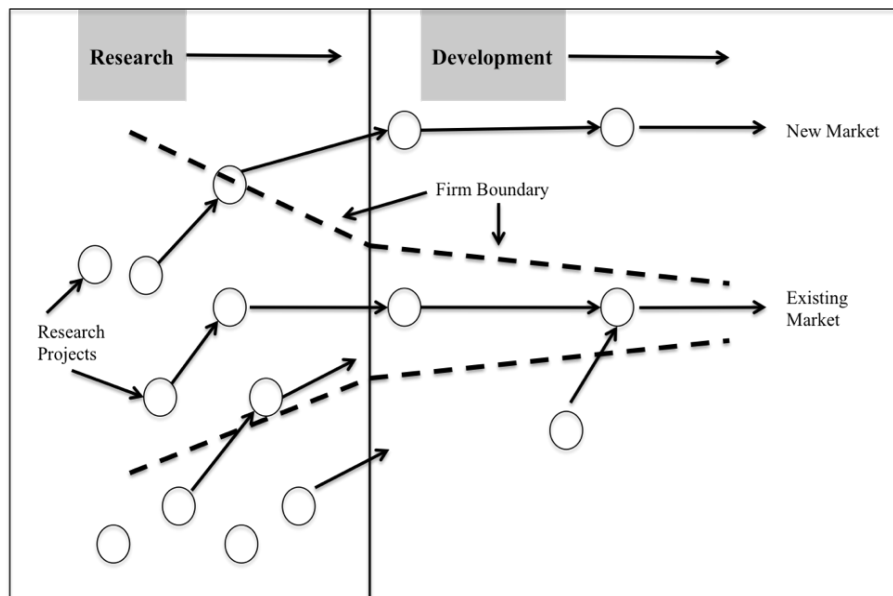
### *2.1. Implementation of New Business or Innovation Models in Companies*

Based on reform processes and intensified competition, companies search for emergent innovation models to gain competitive advantage and to increase their performance. The implementation of such new models requires decisions on strategy and execution from the company's management (e.g. Porter 1996). Strategy is about performing different activities from those of rival companies or performing similar activities in different ways. Strategy always involves risk, because there's uncertainty about consumer behavior, competition, and technological change (Rosenzweig 2007, p. 156). Another source of risk comes not from all the outside the company, but from uncertainties surrounding internal capabilities. In contrast to strategy, the execution takes place entirely within the company and it is all about carrying out the choices. It refers to the way that people, working together in an organizational setting, mobilize resources so support the strategy. Despite the companies' best efforts, the ways that people and processes work together in complex organizations are very hard to untangle and even harder to transplant elsewhere with the same results (Rosenzweig 2007, p. 152). The study of Bloom and Dorgan et al. (2002) points out that the same practices used in one company may lead to somewhat different results in another company. This means that execution, like strategy, doesn't lend itself to predictable cause-and-effect relationships. It is necessary for each company's management to define the most important elements of execution by answering the following key question: For our company, at this time, competing against our rivals, which of the many dimensions of execution are most important (Rosenzweig 2007, p. 154)? Therefore, the challenges for companies that are implementing new practices like open innovation models are two-fold. First, they have to analyze the factors that are influencing their decisions in general and their innovation management in particular (strategy). Second, an individual adaption of the models according to these influencing factors is essential for every company (execution).

## 2.2. Open Innovation Models

A possibility to adapt companies' innovation management to changed environmental conditions is the implementation and diffusion of open innovation models. In the past decades we have witnessed a change process in how enterprises develop and commercialize innovations. The view behind the “old” closed innovation models is that successful innovation requires control (e.g. Schumpeter 1935). It supposes that enterprises must generate their own ideas and then develop them, build them, market them, distribute them, service them, finance them, and support them on their own. These closed models counsel enterprises to be strongly self-reliant, because one cannot be sure of quality, availability, and capability of others' ideas. Open innovation models, though, assume that enterprises can and should use both external and internal ideas and paths to the market, when enterprises look to discover and realize innovative opportunities and to generate value. Internal ideas can also be taken to markets through external channels, outside the current businesses of the enterprise, to generate additional value (Chesbrough 2003, p. 24). The basic idea of these open innovation models is illustrated in figure 1:

Figure 1: The open innovation model

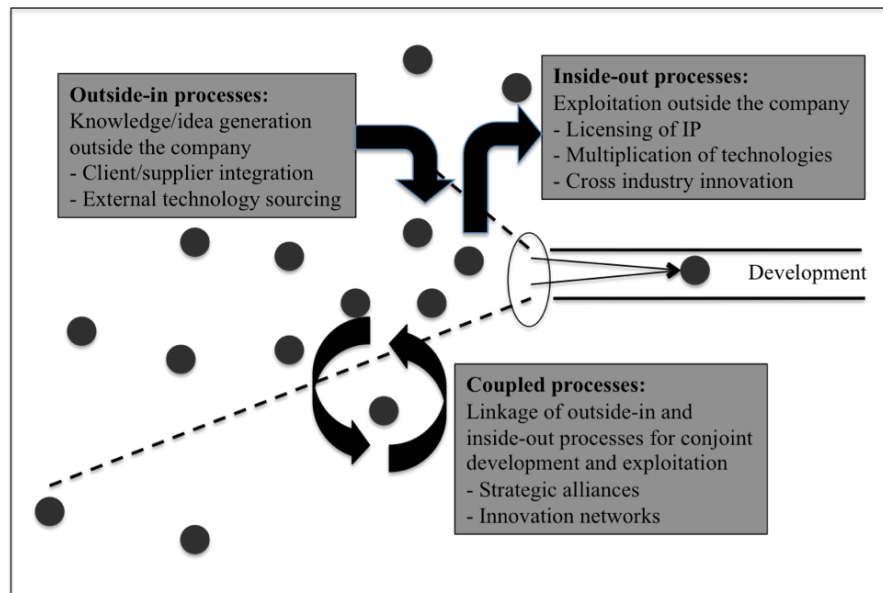


(Chesbrough 2003, p. 24)

In open innovation models, ideas can still originate inside the enterprise, but some of those ideas may seep out, either in the early and later stages of the innovation process (inside-out). Ideas can also start outside the enterprise and move inside later (outside-in). As the figure shows, there are a great many potential ideas outside the enterprise. Although the open model still weeds out false positives (now from external as well as from internal sources), it offers a

broader range of alternatives to benefit from innovation, and it also enables to recover false negatives by acquiring them later (Chesbrough 2003, p. 25). In their study on different companies using open innovation models, Gassmann & Enkel (2006) identify three core processes within open innovation models (p. 134):

Figure 2: Core Processes in Open Innovation Models



(Gassmann & Enkel 2006, p. 134)

- Outside-in processes

The outside-in process combines the internal knowledge of a company with external knowledge of customers, suppliers, or partners and through an active transfer of technologies from other companies and universities. The opening of the innovation processes and the integration of external knowledge sources through cooperation with suppliers and customers can be a core competency of a company. Companies in low-technology industries, in particular, are concentrating on the outside-in process in estimating spillovers from technology-intensive industries (Gassmann & Enkel 2006, p. 134).

- Inside-out processes

The inside-out process encourages the external commercialization. Through licensing, the time-to-market gets shorter and technologies are better multiplied than possible in an internal exploitation. The different inside-out processes can be described as an effective utilization of the internal knowledge through the opening of the company's boundaries. Companies focusing on the inside-out process are strongly engaged in research. These firms, mostly high-

technology companies, aim to reduce their fixed costs for research and development as well as to share the risk of innovations with other companies (Gassmann & Enkel 2006, p. 135).

- Coupled process

The coupled process links the integration and externalization of knowledge for conjoint innovation processes in alliances, joint ventures, and innovation networks. There are two main conditions to be considered for the implementation of cooperative innovation processes in a company. First, companies must be able to adopt external knowledge and integrate it into the own knowledge and technology base. Secondly, they have to externalize internal knowledge to let the partners profit. The success depends on the selection of the right partner for a fruitful cooperation (Gassmann & Enkel 2006, p. 136).

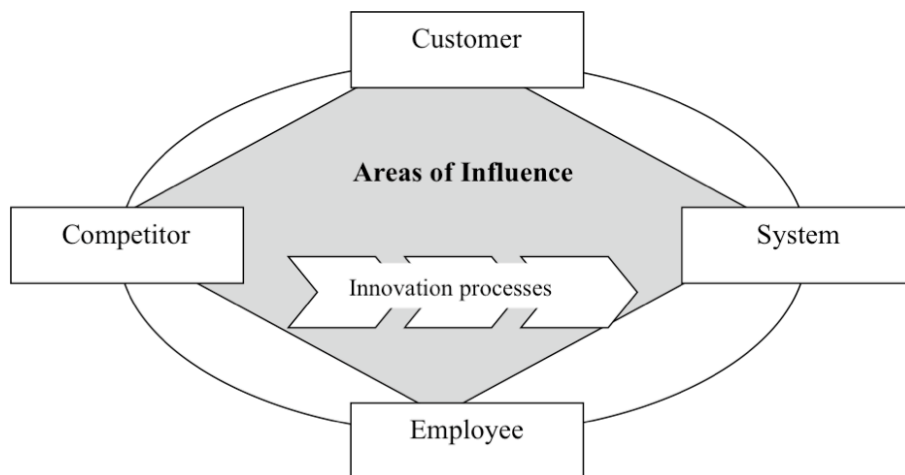
### **3. Models on Influencing Factors**

There are different models either on factors that are influencing the innovation management in general or on the implementation of open innovation models in particular. In this section, we discuss three of them (paragraph 3.1.-3.3.) and combine them in an overall model on open innovation and its influencing factors (paragraph 3.4.).

#### *3.1. Holistic Innovation Management*

The model on holistic innovation management combines the market-based-view with the resource-based-view (e.g. Porter 1998) through integrating the environment of the company as well as the internal capabilities and resources in an integrative approach. The model focuses on the innovation process and on four areas of influence: customer, competitor, employee, and system (Schaller, Rackensperger & Reichwald 2004, p. 58). The four areas of influence are important for all steps in the innovation processes; they influence not only the planning and the realization but may also trigger innovation projects (Reichwald & Schaller 2006, p. 177). The goals of this model are the customer acceptance; based on both qualified capabilities of the employees and a carefully chosen innovation network; the conformity of a company's system with its environment, and sufficient protection of the products and services against imitation (Reichwald & Schaller 2006, p. 177).

Figure 3: Holistic Innovation Management



(Schaller, Rackensperger & Reichwald 2004, p. 58)

Reichwald & Schaller (2006) adopt the holistic innovation model to the specific characteristics of service innovations (p. 175):

It is assumed that customer orientation and integration result in a sustainable competitive advantage. Furthermore, customer orientation can reduce the market uncertainty, which evolves from the intangibility of services. The major challenges are the forecast of future customer needs and the transformation of these needs into marketable solutions. In this context, the interaction or even integration of customers in innovation processes is reasonable. In the service innovation management, competitors are an important area of influence to consider. They are not only used as a benchmark but also for differentiation (Reichwald & Schaller 2006, p. 175). New or changed services ask for new capabilities. Since clients are often involved in the service production process, the perception of the service quality strongly depends on the employee's behavior. Thus, the employees are relevant in the focus of every service and essential for quality oriented service innovation processes (Reichwald & Schaller 2006, p. 176). Another area of influence is the integration of the innovation management in the culture and systems of a company. This is particularly important when the innovation processes are opened up and external resources need to be integrated into the existing systems (Schaller, Rackensperger & Reichwald 2004, p. 59).

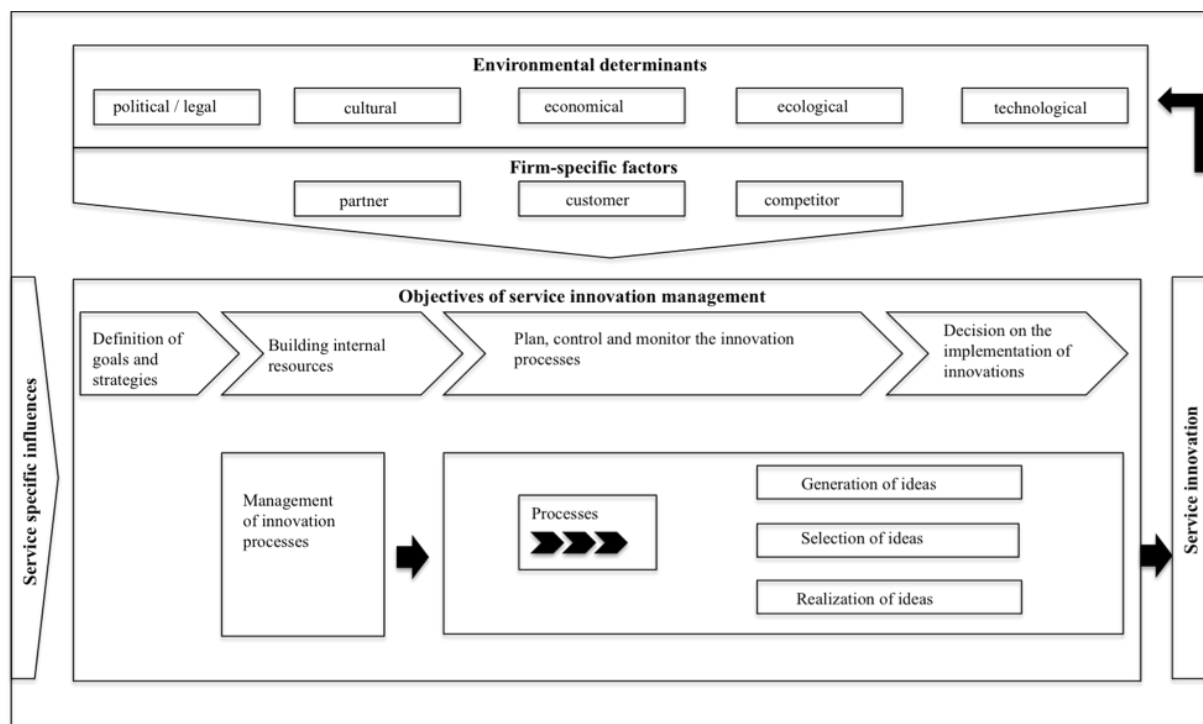


### 3.2. Service Innovation Model

According to the service innovation model (Bransch 2005), the innovation management is influenced from the outside by both environmental determinants and firm-specific factors. Bransch identifies eight major external factors influencing the innovation management in service companies (p. 44):

- Industry-Related External Factors: Political / Legal, Cultural, Economical, Ecological, and Technological Factors
- Firm-Specific External Factors: Partners, Customers, and Competitors

Figure 4: Service Innovation Management



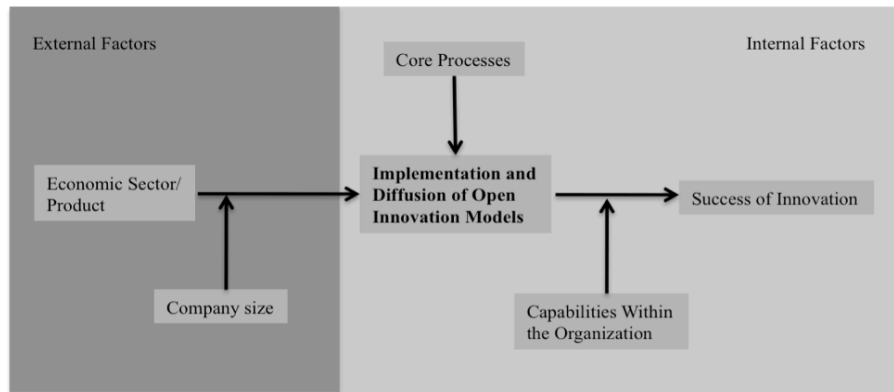
(Bransch 2005, p. 44)

But the challenge to implement open innovation models depends not only on external factors but also on different internal determinants. Previous to the management of the innovation processes, the top management defines the strategies and goals for the innovation management. To achieve the given strategies and goals, there are several internal objectives like the management of the innovation processes and the building of internal resources to be considered (Bransch 2005, p. 44).

### 3.3. Factors Influencing the Implementation of Open Innovation Models

The study of Gassmann and Enkel (2005) identifies a model on factors that are influencing the implementation and diffusion of open innovation models (p. 298):

Figure 5: Factors Influencing the Implementation and Diffusion of Open Innovation Models



(Gassmann & Enkel 2005, p. 298)

According to this model, innovation management differs in many aspects regarding external factors like the economic sector, field of knowledge, type of innovation, historical period, and country concerned (Pavitt 2005, p. 87). The economic sector or the products of a company can be influenced by the complexity of the product and thus affect the integration of external knowledge: the intensity of knowledge used for the product development determines the necessity to integrate additional external knowledge. Since services are often highly complex; product-, process-, social-, and system-innovations are often combined; the integration of external knowledge is fundamental to enable the knowledge-intensive development. Furthermore, a high degree in competition within an industry makes the integration of knowledge of clients or partners into the development processes an essential condition for competitive advantages. The implementation of open innovation models mainly implies a systematization of innovation processes to facilitate strategic decisions on questions like what should be developed inside, what should be integrated from the outside, and what should be developed in cooperation. Since SMEs are more flexible in adopting their innovation processes to the changed conditions than large companies, the company's size is another external influencing factor (Gassmann & Enkel 2005, p. 298).

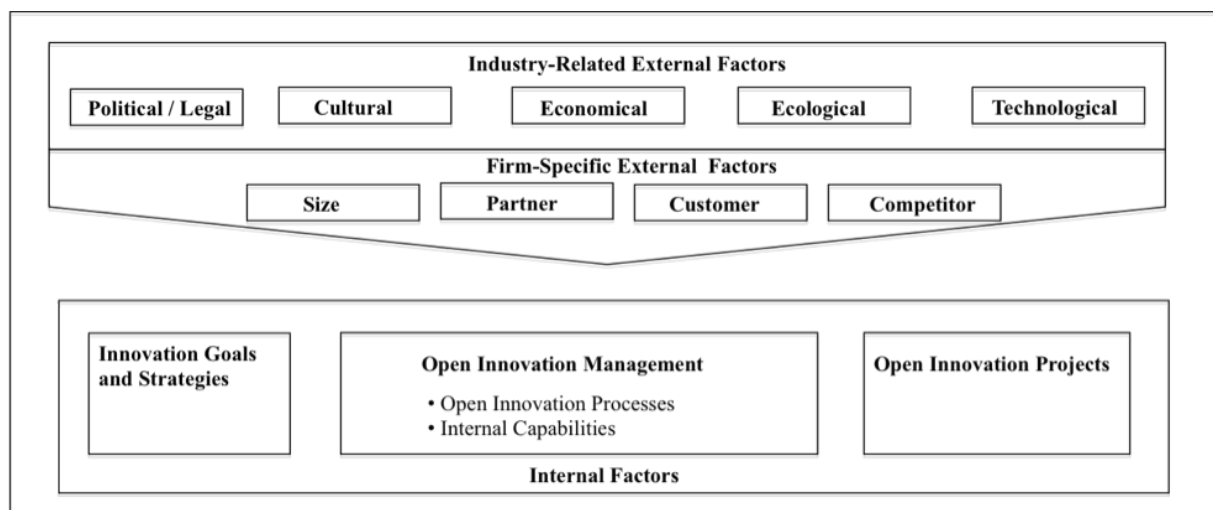
The implementation is additionally influenced by internal factors like the use of the core processes and the capabilities within an organization (Gassmann & Enkel 2005, p. 300). The use of the different processes of open innovation models varies with the firm's corporate

strategy or strategies and its prior experience with innovation (Pavitt 2005, p. 87). The ability of the enterprise to integrate external knowledge in an efficient and effective way and to build up collaborative relations with partners for cooperative innovation development are other internal factors influencing the implementation of open innovation models (Schaller, Rackensperger & Reichwald 2004, p. 60).

### 3.4. Preliminary Conclusion

Combining all three models on influencing factors we identify the following model on factors influencing the implementation of open innovation models:

Figure 6: Open Innovation Management and its Influencing Factors



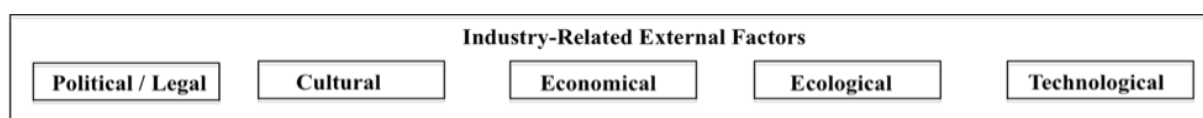
## 4. Factors Influencing the Implementation of Open Innovation Models in the Postal Sector

### 4.1. The Postal Sector

As remarked earlier in this article, the postal market is undergoing profound reform processes. The changes, largely brought about by deregulation and globalization, include growing competition, changing customer demands, and the more widespread use of new information and communication technologies. Governments are expecting higher returns and increased productivity, whilst often demanding universal services. Within this context, traditional postal operators are stretched to the limit of their technological, organizational, and management capabilities. In order to grow and build sustainable competitive advantages in such a context, these organizations need to innovate (Sund 2008, p. 3). To ensure profitability and economic growth in this new business environment, postal operators have to stay flexible and innovative to be competitive in a liberalized market. Hence, the systematic facilitation of innovation is a strategic factor for success and economic independence. As a consequence of the reform processes and the increased competition, postal operators revise their innovation strategies and processes and commit itself to the implementation of open innovation models. In the next paragraphs, we apply the model on open innovation and its influencing factors to the postal sector and analyze external and internal factors that are important for postal operators. To discuss these factors not only from an industry-related but also from a firm-specific perspective, we analyze some internal factors for the case of Swiss Post.

### 4.2. Industry-Related External Factors

Figure 7: Industry-Related External Factors



(Bransch 2005, p. 44)

Over the past decades, the environmental uncertainty for public utilities like postal operators is growing among other things through liberalization and deregulation processes. In the postal sector, the competition, which is often seen as the major motivation for process and product innovation, is currently very low in the mail segment; but there are signs that with the full market opening in 2011-2013 this scenario will considerably change (Felisberto 2008, p. 18). The literature often suggests that competition, as an *economical factor* influencing the innovation management, fosters innovation as it pressures managers to look for superior

alternatives to their current methods. Research shows that the importance of innovation is in general positively associated with environmental uncertainty (Drechsler & Natter 2008, p. 14). Chesbrough (2007) states that the advent of opening up the innovation process is mainly caused by such an uncertain environment and increased economic pressure on firms (p. 21). Drechsler and Natter's study (2008) on antecedents and drivers of open innovation confirms that companies which act in markets with increased competition are forced to use not just one but several external sources in innovation in order to boost their innovation success (p. 22).

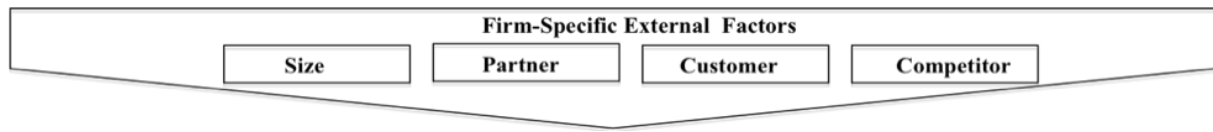
Industrial economics, in contrast, argue that the increased innovativeness of postal operators is mainly caused by *political factors*: the perspective of full market opening allows governments and owners to tighten their request for profitability. Claims for consistent development of relevant technologies and for a new quality of services let postal operators reengineer their business and develop new services (Jaag, Maegli, & Schaad 2007, p. 71). Both perspectives have in common that they favor the use of external partners in innovation processes in order to survive in the market.

Another important economical driver for an increasing innovativeness of postal operators are diminishing profits in the core business (e.g. decreasing mail volume) through *technological factors* like the substitution of traditional products through virtual solutions. This trend is strongly affected by the emergence of new information and communication technologies. The emergence of ubiquitous availability of information technology allowed for the convergence of classic and electronic mail services, leading to the introduction of innovative products (Jaag 2008, p. 151).

As a consequence of the political, economical, and technological transformation processes, today many postal operators rethink their innovation management. Therefore, the industry-related external factors determine when companies implement new innovation models.

#### 4.3. Firm-Specific External Factors

Figure 8: Firm-Specific External Factors



(Bransch 2005, p. 44)

Most postal operators are large and diversified companies that are not as flexible as a small firm in adopting new innovation models. Due to postal operators' *size*, the implementation of open innovation models mainly implies strategic decisions and a systematization of the innovation processes (Gassmann & Enkel 2005, p. 298). Because they are companies with highly complex services, the integration of external knowledge and collaborative innovation processes with partners are essential. Suppliers, research institutions like universities, competitors, and customers are relevant *partners* (De Jong et al 2008, p. 18):

Since the technological dependency of service companies is rapidly growing, collaborative innovation processes with suppliers, in particular technology suppliers, are getting more and more important for service companies. Systematic innovation processes ask for an intensive interaction between suppliers and service companies, facilitated through strategic relationships (Boutellier & Wagner 2001, p. 41). The aim of these collaborations is the joint development of knowledge. According to the study of Sund (2008) on the innovativeness in the postal sector, suppliers are recognized as important enablers of product and service innovation (p. 17). Since suppliers know best the technological possibilities fitting to a company's requirements, their involvement in innovation processes at an early stage and on a high level makes obviously sense (Boutellier & Wagner 2001, p. 49). Only recently, collaborations of postal operators with technology suppliers allow for a centralization of mail processing and network optimization (Jaag 2008, p. 151).

Through intensified cooperation of service companies with research institutions like universities, additional knowledge move from outside into the companies. If the transfer of technology and knowledge is effective and efficient, the companies will profit from marketable product and process technologies, which enhance the profit and reduce costs. Studies on network collaborations confirm the increased success of product and process innovations in companies cooperating with universities (Walter 2003, p. 2). The growing

interest of the economy in knowledge and technology transfers with research institutions is enabled through new modes of transfer. Companies no longer act as passive knowledge recipient but as knowledge partners for universities and actively involve their requirements into the transfer processes (Zinkl & Binet 1997, p. 50). An example of collaborative innovation processes between universities and postal operators is Swiss Post's PostLab. Established as an incubator in 2008 at EPFL (Ecole Polytechnique Fédéral de Lausanne), the goals of PostLab are to build up strong connections between the scientific and the industrial world and to integrate scientific knowledge into the innovation processes of Swiss Post.

To define the degree of an innovation, *competitors* are important benchmarks. The question “new for whom?” is answered with “new for the industry” or “new for us and the most important competitors”. In relevance to differentiation, competitors are also considered for the processes of design, implementation, test, or introduction on the market (Reichwald & Schaller 2006, p. 175). Although innovations with competitors may initially seem counterproductive, strategic relationships with competitors are an additional possibility to increase the innovativeness of a company. Ritter (2005) identifies two major advantages of such cooperation (p. 629):

- Market growth: The collaboration with competitors in a pre-competitive stage, i.e. before a concrete service is defined, allows companies to develop new knowledge, which would not be possible otherwise. In addition, such collaborations can open up new markets. Thereby, both parties can profit from an enlarged market volume.
- Increased or defended market share: Competitors in cooperative innovation processes can suppress new competitors through their collective market power. This leads to increased or defended market share.

The cooperation of service companies like postal operators with competitors is often hampered by the intangibility of services and the missing protection against imitation (Schaller, Rackensperger & Reichwald 2004, p. 54-55). Nevertheless, postal operators nowadays exchange their knowledge on technologies and their applications to the different core businesses. TNT and Swiss Post, for example, are engaged in a collaborative innovation process on the development of ecological sustainable vehicles.

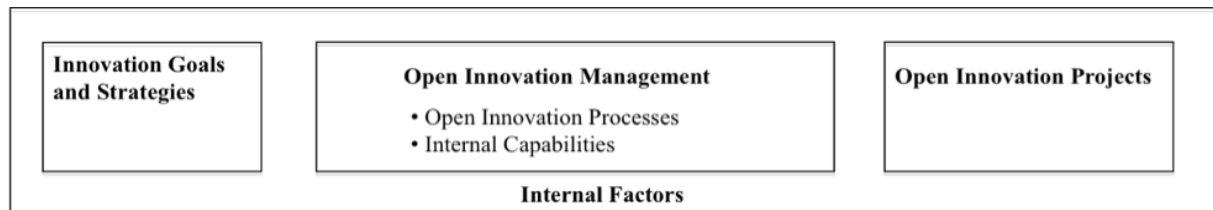
Some of the world's historical postal operators recognized the *customer* as the most important external enabler of innovation (Sund 2008, p. 17). Customer lifestyles and demands have profoundly evolved, in a significant part due to the development of information and communication technologies. Customers today prefer tailored services that take into account their differentiated needs. Moreover, in the information society customers ask for ubiquitous, interactive, and flexible services. Therefore, it is logical that many studies have found that both innovation and market orientation have important effects on the long-term performance and survival of firms (Sund 2008, p. 8). In an uncertain environment, new needs and wants of customers can be created and new opportunities for profit explored. In an earlier study by the Chair MIR of the EPFL (Abdallah, Felisberto & Finger 2006), it was found that evolving customers' demands is one of the most important drivers of change in the postal sector. Hence, customer orientation is essential for companies in the postal sector and the integration of customers into the innovation processes in terms of the outside-in processes reasonable. The lead-user approach (e.g. von Hippel 2006) is a crucial example of customer integration modes and is often seen as starting point for the opening of innovation processes (Reichwald & Piller 2006, p. 130).

According to Fredberg, Elmquist and Ollila (2008), the problem of organizing the external environment to make use of the wisdom of the outside is just one reason for the limited number of firms using open innovation. Another issue is that even if the firm manages to do that, a core problem is to organize internally to make use of the innovative ideas and knowledge (p. 29). Consequently, the firm-specific external determinants as well as the internal factors influence how the new innovation models are implemented. In the next paragraph, some internal factors influencing the realization of open innovation models are analyzed. To make the practical relevance more explicit, we apply them to the case of Swiss Post.



#### 4.4. Internal Factors

Figure 9: Internal Factors



(Bransch 2005, p. 44)

The challenges for the implementation of open innovation models involve *strategic decisions and goals* as well as sustaining internal commitment over sufficient time to realize benefits from adopting such models. In their survey on early adopters of open innovation models in others than high-technology industries, Chesbrough and Kardon Crowther (2006) indentify senior management support and funding at the outset of the initiative as important for the implementation of open innovation models. Swiss Post's top management, for example, identifies three strategic principles for innovation (Swiss Post 2008, p. 3):

- Innovation is a strategic factor for success  
Swiss Post has to stay flexible to compensate the disadvantages of a small postal operator in liberalized markets and to ensure existence. Swiss Post understands the systematic facilitation of innovations as a strategic factor for success and economic independence.
- The innovation culture is essential for a sustainable success of Swiss Post  
An innovation culture of openness and flexibility is a main factor for success. To establish an innovation culture, intentional and long-term processes are essential. The aim of these processes is to create simple innovation processes, the early involvement of customers and other partners, fast developed and tested prototypes without the demand for perfection and a consistent implementation of ideas. The willingness to make changes, to accept failures and learn from them is part of the innovation culture of Swiss Post.
- There are certain premises needed to increase the potential for innovations  
Swiss Post commits itself to the use of open innovation models. Innovations occur with partners (customers, universities, suppliers and other partners). The opening of the innovation process and the selective linking of internal and external knowledge increase the innovative strength of Swiss Post.

Open innovation champions to manage the process that incorporates the innovations in the business along with revised internal processes, metrics, and incentives are important for the implementation of the strategic goals through the *open innovation management* (Chesbrough & Kardon Crowther 2006, p. 235). The open innovation management includes the organization of the *open innovation processes*. Open innovation processes combine internal and external ideas into architectures and systems and utilize business models to define the requirements for these architectures and systems (Chesbrough 2006, p. 1). Due to the missing technologies and the restricted IP rights for services, service companies like postal operators, in contrast to high-technology industries, mainly focus their open innovation processes on the integration of external technologies (outside-in processes) and on knowledge management (coupled processes) (Stucki 2008, p. 40). There is a general observation and assumption that though open innovation increases the potential creativity in the innovation process, it also increases the complexity involved in managing the process. An open innovation process demands that managers can handle both the inside and the outside of the organization (Fredberg, Elmquist & Ollila, 2008). This corresponds with the results of Sund's survey (2008), where the respondents identify the top-management as the most important stakeholder in encouraging innovation within a postal operator. In fact, studies have shown clearly that leadership and senior management support for innovative ideas and new product development is crucial for the performance of the innovative process. Without this support there is little chance of innovative projects making it (p. 17).

Top management is just one important aspect of the *internal capabilities* within a company. The realization of new innovation models leads to different internal adaption processes. The employees have to integrate and apply the new principles in the innovation processes (Reichwald & Schaller 2006, p. 176). Hence, an innovative culture has to be implemented in the company. Firms with an innovative culture create an atmosphere where entrepreneurship and risk taking are encouraged and are rewarded and where individuals or teams are not punished inadvertently when new products or services do not achieve expected results. A climate of openness and informal communication is typical in the firms. Literature on new product development provides ample research-based evidence that a strong innovation culture has a positive impact on expected results (De Brentani & Kleinschmidt 2004, p. 312).

Because of shorter innovation cycles and dynamically changing customer needs, knowledge management is essential for service companies (Kleinaltenkamp & Frauendorf 2006, p. 360).

Both external and internal knowledge need to be connected, managed, and implemented into the culture and systems of a company. An open innovation culture and the facilitation of knowledge communities (e.g. communities of practice) are therefore important conditions for an efficient and effective knowledge management (Kleinaltemkamp & Frauendorf 2006, p. 370). There are three major tasks in knowledge management: knowledge acquisition (make or buy), knowledge integration (integrate or relate) and knowledge exploitation (keep or sell) (Fredberg, Elmquist & Ollila 2008, p. 16). Thus, knowledge management includes the management of basic conditions supporting the accumulation of knowledge and all information, communication, and learning processes that increase the innovativeness of companies (Grizelj 2006, p. 84).

As a consequence of the reform processes and the increased competition, in 2008, Swiss Post decided to implement and diffuse open innovation models and established an innovation program to adapt the internal processes and capabilities to the open innovation. The innovation program consists of the three major aspects architecture, culture, and communication (Swiss Post 2008b). The architecture defines the structures, platforms, and processes of Swiss Post's innovation management. An example of a recent development is the creation of an innovation jury allowing rapid decisions on innovation projects, leading to an increased number of both product and process innovation and shortened development processes. Innovation platforms like the previous mentioned PostLab, Postidea (virtual management of employee's innovative ideas), and an intentional knowledge management further increase the innovativeness of Swiss Post. Another goal of the innovation program is the diffusion of open innovation into all process of the enterprise through strategic initiatives like innovation workshops, active knowledge management, and intended communication.

## **5. Conclusion**

In this paper we address the emergence of open innovation models and their implementation in industries undergoing profound transformation processes. We assume that the implementation of such models is influenced by external and internal factors differing from both an industrial- and a firm-oriented perspective. Existing models on service innovations and on the implementation of open innovation models reveal the challenges that companies are facing in their decision processes concerning the implementation of open innovation models. By analyzing the innovation management and the implementation of open innovation models at the postal sector, we identify two major conclusions:

1. Industry-related external factors are constitutive for a company's innovation management. They determine *when* companies rethink their innovation management.
2. Firm-specific external factors and internal factors determine *how* companies implement open innovation models. The realization of open innovation models affects the architectures, culture, and communication of a company's innovation management.

We argue that the implementation of open innovation models varies for each company according to external and internal factors. Therefore, each company has to analyze their specific industry-related and firm-specific external factors along with the internal factors and adapt the open innovation models to these factors.

## **6. Limitations and Implication for Future Research**

This present article has three major limitations. First, we are not yet able to provide a framework of factors influencing the implementation of open innovation models varying for different time periods, countries, industries, and companies. Second, we assume that there are relations and correlations between the different factors that are not yet clearly identified and analyzed. And third, it has to be defined what specific characteristics of the influencing factors are necessary for the implementation of open innovation models.

In order to clarify how future research can contribute to the framework on factors that are influencing the implementation and diffusion of open innovation models, we formulate the following questions:

- How does the influence of the different external factors vary over different time periods, countries, industries, and companies?
- How are both external and internal influencing factors related?
- How can companies adapt open innovation models in reference to their industry-related, firm-specific, and internal determinants?
- What factors are necessary for the implementation of open innovation models?

The contribution of this type of research will be to complete the framework on influencing factors and to give recommendations to companies in transformation processes on how they could best adapt open innovation models to their specific situation.

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